TESTIMONY OF JIM SLATTERY

CLIMATE CHANGE: COMPETITIVENESS CONCERNS AND PROSPECTS FOR ENGAGING DEVELOPING COUNTRIES

BEFORE THE ENERGY AND AIR QUALITY SUBCOMMITTEE,
ENERGY AND COMMERCE COMMITTEE,
U.S. HOUSE OF REPRESENTATIVES
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Mr. Chairman and members of the Committee, thank you for the opportunity to appear before you today. My name is Jim Slattery, and I am a partner with Wiley Rein LLP. As counsel to Nucor Corporation, I am appearing on behalf of the American Iron and Steel Institute and the Steel Manufacturers Association. These associations represent the companies that produce practically all of America's carbon steel. Their products include the girders and beams in our bridges, the steel in our pipelines, the rebar in our roads, the plate in our ships, the steel in our windmills, and the corrosion-resistant metal in our cars.

My testimony will focus on the international aspects of climate change legislation and its implications for American industry. This includes both how to prevent climate change legislation from putting domestic industry at a competitive disadvantage, and how to encourage foreign firms serving U.S. markets to lower their carbon footprint. Mr. Chairman, if we cannot induce developing nations like China, India, Russia, and Brazil to address the carbon footprint of their economies, what we do in the U.S. will matter little. Specifically, I will explain how the United States can use carbon intensity standards to decrease domestic and global greenhouse gas emissions without harming U.S. competitiveness. While my focus is on the American steel industry, much of this testimony is potentially applicable to other energy-intensive industries.

(Mr. Chairman, I compliment you and your staff for the excellent white paper that you issued defining how critically important competitiveness concerns are for American industry. The paper is thoughtful and insightful as it outlines the major options for addressing these concerns and for engaging developing nations in reducing their contribution to the increasing concentrations of greenhouse gases in the earth's atmosphere. I also commend you for holding this hearing.)

In the case of steel, carbon intensity standards would set limits on how much carbon dioxide and other greenhouse gases could be emitted in the production of a given steel product sold in the United States. These standards would apply to both domestically produced and imported products.[1] The American Iron and Steel Institute, the industry's largest trade association, has stated that:

> {Any}program must be a truly global approach involving all major GHG {greenhouse gas} emitting countries and must be verifiable and enforceable. To ensure a global approach and to protect the competitiveness of domestic products, legislation should include a requirement that all products sold in the U.S., whether domestic or imported, meet a carbon intensity performance standard…[2]

While the United States cannot force other countries to control their greenhouse gas emissions, carbon intensity standards would encourage both domestic and foreign producers to do so by conditioning access to the U.S. market on compliance with the standards.

Greenhouse Gas Emissions by the U.S. Steel Industry

As the American Iron and Steel Institute has testified, the American steel industry is part of the solution in the climate change debate, not the problem. We not only beat the Kyoto targets

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[1] The term "standard" is used here as a matter of convenience, as this is how measures of this type are normally described under the Agreement on Technical Barriers to Trade. These measures would technically be considered "regulations" as they would be imposed by a government and are mandatory.

[2] American Iron and Steel Institute, *2008 Public Policy Agenda* 8 (2008).

11 years early, we are already doing what Congress seeks to require for the entire economy. A paper the NAFTA steel industry submitted to the Organization for Economic Cooperation and Development in late 2007 establishes a key point. American steel producers are among the most efficient in the world in terms of greenhouse gas emissions.[3] American steelmakers emit on average only a little over 1.2 tons of greenhouse gases per ton of steel.[4]

On average, steel producers around the world emit more than 1.7 tons of greenhouse gases, directly and indirectly, for every ton of steel they produce.[5] For some major producers, including China, emissions are significantly higher. Unfortunately, we do not have reliable data on China, which is by far the largest steel producer in the world.[6] Although some international statistics indicate that China emits nearly 2.5 tons of greenhouse gases for every ton of steel produced,[7] the real number is almost certainly higher, perhaps 4 to 5 tons. The bottom line is that,

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[3] Organization for Economic Cooperation and Development, *The NAFTA Steel Industry and Greenhouse Gas Emissions* (2007). A copy of this paper is attached.

[4] American Iron and Steel Institute, *Recap of IISI & AISI Indicator Values* (2007). The American steel industry also emits fewer greenhouse gases directly (i.e., from the steelmaking process itself) than most other major producers. Direct greenhouse gas emissions per ton of steel produced by the American steel industry are one-half or less of those emitted by producers in Germany, Australia, and Japan. Levels of process emissions were taken from official filings with the U.N. Convention on Climate Change, available at http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/3929.php. Because Japan reports emissions from coke production and use as "energy related," but other countries report these emissions as process emissions, these emissions were treated as process emissions. The total emissions reported were divided by the country's steel production for 2005, as reported by IISI in *Steel Statistical Yearbook 2006* at 11.

[5] International Iron and Steel Institute, *Steel: The Foundation of a Sustainable Future* 23 (2006), available at http://www.worldsteel.org/index.php?action=storypages&id=131.

[6] In addition, the Chinese steel industry is growing at a frantic pace; China installed 60.9 million metric tons of new steel capacity in 2007, and a further 55 million tons is due to come on line in 2008. In comparison, the entire U.S. steel industry produced around 100 million metric tons in 2007.

[7] According to IISI, China accounted for around 50 percent of total greenhouse gas emissions by the world steel industry. International Iron and Steel Institute, *A global sector approach to CO2 emissions reduction for the steel industry* 3 (2007). Average emissions for the global steel industry in 2005 were 1.7 metric tons per ton of steel, while global steel production in 2006 was 1,244 million metric tons. This calculates to approximate total emissions in 2006 of 2,115 million metric tons of greenhouse gases. With 50 percent of the total, Chinese emissions in 2006 were around 1,057 million metric tons. Chinese steel production in 2006 was 422.7 million metric tons. International Iron and Steel Institute, *World Steel in Figures 2007* 3 (2007), available at www.worldsteel.org. This yields

for every ton of domestically produced steel that is replaced by imports, greenhouse gas emissions increase by half a ton or more. For imports from China – the second largest source of steel imports in the United States – the difference is at least double, perhaps triple, U.S. emissions.

The U.S. industry's achievements reflect a decades-long drive by the American steel industry to maximize recycling and improve efficiency.[8] According to the EPA, the steel industry's directly emitted process-related emissions were 86.2 million metric tons of CO_2 equivalent in 1990.[9] In 2005, those emissions were only 46.2 million metric tons, a reduction of nearly 50 percent, even though steel production in 2005 was more than seven percent higher than in 1990. The United States is not a signatory to the Kyoto Protocol, but if it were, the U.S. steel industry would have substantially beaten the U.S.'s Kyoto targeted reduction (a seven percent reduction in direct greenhouse gas emissions by 2012). Today, the production of steel accounts for less than two percent of total U.S. greenhouse gas emissions.

Carbon Intensity Standards for Steel

Certain recent proposals seem to accept the loss of energy-intensive industries in the United States as an inevitable consequence of climate change legislation. Some have referred cavalierly to this as "leakage." In fact, the loss of energy-intensive manufacturing industries like steel as a consequence of climate change legislation would cost millions of Americans their jobs,

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emissions of 2.5 tons of greenhouse gases for each ton of steel produced in China. Industry sources state that Chinese emissions are in fact much higher, at around four tons of greenhouse gases per ton of steel.

[8] *See* American Iron and Steel Institute *et al.*, *The NAFTA Steel Industry and Greenhouse Gas Emissions: Actions, Achievements and Obstacles* 13-23 (2007).

[9] Production figures for 1990 are from IISI, Steel Statistic Archive 1990, available at http://www.worldsteel.org/?action=stats&type=steel&period=year&year=1990. Production figures for 1995 are from IISI, Steel Statistic Archive 1995, available at http://www.worldsteel.org/?action=stats&type=steel&period=year&year=1995. Production figures for 1997 – 2005 are from IISI, *Steel Statistical Yearbook 2006* at 11. Emissions are derived from *Inventory of U.S. Greenhouse Gas Emissions and Inventories 1990 – 2005* at ES-4 "CO_2 equivalent" represents total emissions of all greenhouse gases, with quantities of non- CO_2 converted to reflect how much CO_2 would have the same climate effects.

damage our economy, and threaten our national security. Even worse from a climate perspective, because American manufacturers are generally among the most efficient in the world, such "leakage" would result in increased global emissions of greenhouse gases, exactly opposite the intended result.

One way to avoid this result is to promulgate and apply carbon intensity standards that set an upper limit on greenhouse gas emissions per ton of steel produced and that apply to all steel consumed in the United States, whether domestically produced or imported. These standards would be analogous to the fleet fuel economy standards that the United States already imposes on automobiles, and the energy efficiency standards that apply to appliances – regulatory regimes with which this committee is very familiar.

First, Mr. Chairman, let me emphasize that however Congress seeks global reach on foreign manufacturers who sell in U.S. markets, carbon intensity is the only suitable metric, not total carbon emissions. This is true whether Congress creates a cap-and-trade system, levies carbon taxes, or imposes carbon intensity standards on foreign and domestic products. Whatever approach Congress takes, the only available metric is the carbon intensity of foreign products. Congress has no authority to impose carbon caps on the total emissions from foreign economies, and carbon intensity is the only reasonable way to enlist countries like China, Russia, Ukraine, India and Brazil to participate in a meaningful global framework. The fact is, all you have to work with is the carbon intensity of the products sold in our country. Again, that is the only hook on foreign-made products.

Second, whatever approach Congress takes to achieve global reach, it must require the submission of verifiable data on carbon intensity from domestic and foreign manufacturers selling in the U.S. market. Submission of data should be simultaneous for domestic and foreign

manufacturers doing business in the U.S. Only then is a regulatory agency, such as EPA, in a position to set regulatory requirements.

Third, while calculating the carbon intensity of steel products and setting a carbon intensity standard sounds complicated, it is fairly straightforward. The first step in setting a standard would be to require domestic and foreign steel producers to report their emissions for different categories of steel products – steel slab, beams, sheet, etc. – on a per ton basis. The sources of greenhouse gas emissions from steelmaking are readily identifiable, and steel producers track their consumption of these inputs in the ordinary course of business. Domestic manufacturers already share this information in aggregate with EPA in a number of programs.

To calculate the emissions arising from the use of these inputs, it is necessary to know how much CO2 is released on average from the use of a given quantity of the input, such as a ton of coal. By multiplying this "greenhouse gas factor" by the amount of the input consumed, a steel producer can calculate its total greenhouse gas emissions from the use of that input. The International Iron and Steel Institute has already calculated these emissions factors for a range of inputs.

To determine its carbon intensity, the steel producer could in most cases simply (1) identify the quantity of each input it consumed during a given period; (2) multiply that quantity by the "greenhouse gas factor" for the input identified by the EPA; (3) add up the total emissions from all of its inputs; and (4) divide total emissions by the total tons of steel it produced. The calculations for different products would vary slightly, but the overall form would remain consistent.

There are several ways to set a carbon intensity performance standard. We offer the following approach because it is market-based. Once domestic and foreign producers have reported

their carbon intensity for various products, Congress would direct the EPA to set the standard so that a predetermined percentage of U.S. production (90 percent, for example) would meet the standard. Producers (both foreign and domestic) who did not satisfy the standard would have a fixed amount of time (several years), to bring themselves into compliance. If they did not do so, their products could not be sold in the United States. Finally, EPA would periodically review the standard to determine whether additional improvement in the standard is economically and technologically feasible.

Carbon intensity standards provide an efficient and effective way to decrease greenhouse gas emissions globally while limiting the harm to American competitiveness. The key is that these standards would apply to *both* domestically produced and imported products. My colleague Charles Verrill[10] has conducted an intensive analysis of the GATT consistency of such standards, and has concluded that they would be consistent with U.S. obligations under the GATT. Because the compliance of U.S. measures with our international obligations is such an important issue, we will make a copy of the latest analysis available to the Committee. [11]

Consideration of Steel Production Processes

As you contemplate any climate change policy, we think it is vitally important for this Committee, and other members of Congress, to understand a few basic facts about steel production. Importantly, steel is a man-made alloy of iron, a natural element, and carbon is an essential ingredient and byproduct of that transformation.

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[10] Charles Verrill is a partner in the International Trade Group of Wiley Rein LLP, and an adjunct professor at Duke University School of Law and Georgetown University Law Center. He has published numerous books and articles on various aspects of international trade.

[11] See Charles Verrill, "Maximum Carbon Intensity Limitations and the Agreement on Technical Barriers to Trade," "Climate Change in a Global Economy,," a special issue of Carbon & Climate Law Review, to be exhibited at Point Carbon's Carbon Market Insights 2008, Copenhagen, anticipated publication -- second week of March.

What is universally called the steel industry are actually two distinct but complementary production processes. The first involves smelting iron from various forms of mined iron ore, and then transforming the molten iron into steel by the introduction of various alloying elements. In the industry's vernacular, we refer to this as the "integrated" process, and it is characterized by coke ovens, blast furnaces, and basic oxygen furnaces, or "BOFs."

Iron production is essential to steel production, and an unavoidable byproduct of iron production is carbon dioxide, commonly referred to as "process emissions." However, once steel is produced from iron, and after serving useful purposes for decades, it can be recycled, re-melted and reshaped into new products in a cycle that virtually has no end. It is notable that the domestic steel industry recycles its product at a higher rate than aluminum, paper, glass and plastic combined, including the steel from 100% of the automobiles produced in the United States.

Typically, this form of steel production is accomplished by re-melting reclaimed scrap steel and other iron-bearing materials in an electric arc furnace, or "EAF," and is often referred to as a "mini-mill." Because re-melting scrap steel does not require the same chemical transformation needed to extract molten iron from iron ore, EAFs typically have much lower carbon emissions than the integrated process, even if indirect emissions from electricity purchased from upstream suppliers are factored in. The growth of recycling and the widespread deployment of EAF technology in the U.S. since the early 1980's are major reasons for the declining carbon footprint of the U. S. steel industry. Bonus allocations should be used to encourage the recycling of steel. Today, 60 percent of America's steel is produced using EAF technology.

It is important to understand the interaction and interdependence of these two distinct processes. As I've noted, the United States already recycles 100 percent of the automobiles produced in this country, and has high recycling rates for other steel products. We are reaching the

practical limits of EAF production, due to the constraints of the key ingredient – scrap steel. Metallurgically, certain steel grades have been obtained only through the integrated process.

Because of these differences in steelmaking processes, carbon intensity will vary greatly between different types of mills. Some products, such as rebar, are made in the United States exclusively in EAF mills. Other products, such as hot-rolled steel sheet, are made in both types of facilities. Still other products, such as ultra-low carbon grades for special applications, are made exclusively in BOF shops. While EAFs utilize some pig iron, and BOFs utilize some scrap, there remain significant technological barriers to complete interchangeability of processes. Therefore, for individual products, EPA would set two different standards, depending on whether the product was produced using a BOF or an EAF, with a clear understanding of the competitive and technological relationships referenced above.

Higher, uncompensated regulatory and related costs imposed on steel producers – regardless of which industrial process they employ -- will force manufacturers to move production from the United States to countries like China, India and Brazil, that do not have comprehensive and significant greenhouse gas reduction obligations. For example, while electric arc furnaces use some coal, perhaps enough to create allowance obligations, their greatest vulnerability is from increases in electricity prices as electric utilities pass through their allowance costs to their customers downstream.[12] Unless these electric arc furnace operators obtain some kind of relief, such as emission allowances to sell to offset these higher electricity prices, these operators, who emit the least greenhouse gases, will not be competitive with higher emitters globally. This is exactly what is happening in the European Union, which has the longest established and most comprehensive greenhouse gas cap-and-trade system in the world.

[12] S. 2191, now pending in the Senate, would impose allowance obligations on EAF steelmakers.

Steelmakers in the EU have been hit with substantial increases in electricity costs, increases that have made them less competitive internationally.[13] The President of WV Stahl, the federation of German steel producers, estimates that the EU's climate change regime will increase the costs of the German steel industry alone by two billion euros per year,[14] or over 41 euros per ton of steel produced.[15] As a consequence, European steelmakers have become reluctant to make large new investments in the EU.

Poorly-designed climate change legislation could have similar impact in the United States. Duke Energy, one of the country's largest generators of electricity, predicts that a cap-and-trade system could cause electricity prices in the Duke service area to rise by 53 percent by 2012.[16] Electric arc furnaces use large amounts of electricity. Such an enormous increase in electricity prices would have a clear impact on their competitiveness. Indeed, sharp increases in electricity prices will diminish the competitiveness of every business in the United States that uses substantial amounts of electricity – which includes practically every manufacturing industry in the country. Sharp increases in electricity costs would be especially harmful to steel producers

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[13] *See, e.g.,* P. Price, Eurofer slams Commission's ETS Proposal, *American Metal Market* (January 24, 2008), available at http://amm.com/2008-01-24_06-50-43.html. According to Eurostat, prices for electricity sold to industrial consumers increased by 22 percent between 2005 and 2007. Eurostat, Electricity prices – industrial users, available at http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detail-ref&language=en&product=Yearlies_new_environment_energy&root=Yearlies_new_environment_energy/H/H2/H21/er02b1.

[14] P. Price, ETS revisions give no security for EU steel says Ameling, *American Metal Market* (January 24, 2008), available at http://amm.com/2008-01-24__07-00-52.html.

[15] According to IISI, Germany produced 48.5 million tons of steel in 2007.

[16] Duke Energy, Power Costs Would Increase Dramatically under Lieberman-Warner Legislation, available at http://www.duke-energy.com/news/releases/2007111501.asp (Feb. 11, 2008).

who use electric arc furnaces and who do not generate significant process emission greenhouse gases.

Finally, higher utility costs would also affect integrated and EAF producers in both downstream processing operations, such as rolling mills and coating lines. For example, increased electricity costs would dramatically harm producers making corrosion-resistant steels via the electro-galvanizing process, which, as the name implies, utilizes significant amounts of electricity, and which represents a major end-use market for appliances and automobiles. In this case, it should be remembered that substitution of these products from other sources will increase greenhouse gas emissions globally.

Suggestions Regarding Cap and Trade Legislation

I would be remiss if I did not tell you that the U.S. steel industry still has grave doubts about how well cap and trade can address climate change. Admittedly, the cap-and-trade approach worked reasonably well on the acid rain problem. Regulating greenhouse gases, however, is a much broader and more complex problem than regulating sulfur dioxide and nitrogen oxides emissions. The risks and costs of implementing the wrong policy are substantially higher. The climate change issue is quite different. With climate change we have major technological gaps, the presence of foreign competitors and thus the need for global reach, and no guaranteed ability for pass-through of regulatory costs. If Congress does proceed with cap and trade, however, then we have some suggestions.

First, with respect to steel and other energy-intensive industries, several principles must underlie any climate change legislation. The products of energy-intensive industries like steel, whether domestically produced or imported, must be subject to the same requirements, starting at the same time, with no exceptions and no discretion. These principles will encourage a "race to

the top" in producers around the world. Conversely, a system that applies weaker measures to imports than goods produced in the United States will result in the off-shoring of American industries, the loss of American jobs – and an increase in global emissions of greenhouse gases.

Second, the legislation must recognize the different vulnerabilities to a cap and trade regime of both the integrated steel mills and the electric arc furnaces and be designed to prevent the demise of either. While cap and trade legislation hits these firms in different ways, the costs are not borne at all by foreign competitors in mostly developing countries, thus creating a competitive disadvantage for domestic firms. In a recent speech, José Manuel Durão Barroso, the President of the European Commission, raised precisely such an alternative arrangement for steel and other energy-intensive industries in Europe.[17] Similarly, Canada is in the midst of a comprehensive regulatory review that aims to exempt certain industrial fixed process emissions (not entire industries) from its cap-and-trade system. This review is rooted in the understanding that the ability to reduce some emissions lies beyond reasonable or known control technologies. To that end, the Congress could consider exempting from regulation gasses from fixed process emissions such as the use of coal or coke in the chemical reduction of iron ore. In 1993 when the U.S. House of Representatives passed the ill-fated BTU tax proposal, there was general acceptance that certain industrial processes requiring energy as a feedstock (e.g., electricity for electrolytic processes, natural gas for chemicals, coal/coke for steelmaking, etc.) should be exempted at least in part from the proposed tax regime (and imported goods with substantial like inputs be commensurately taxed), precisely because of international competitiveness concerns. Similarly,

[17] J. Durão, 20/20 by 2020: Europe's Climate Change Opportunity (2008), available at http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/08/34&format=HTML&aged=0&language=EN&guiLanguage=en.

the legislation could allocate allowances to the steel industry to offset higher energy costs and to reward those who recycle the most.

Third, any cap-and-trade system will face the problem of how to achieve "global reach" as a part of the international competitiveness problem. The Senate legislation S. 2191 uses the American Electric Power approach. I am here to discuss performance standards, but I will say that the steel industry has examined the AEP approach in great detail, both as a stand-alone provision and within the context of S. 2191. As contained in S. 2191, the AEP approach is, we think, unworkable. We believe that any competitiveness provision should 1) apply simultaneously to domestic and foreign firms selling in the U.S. market; 2) use the same baseline periods; 3) not invite subsidies by foreign governments; and 4) not enable the Administration to waive the requirements on foreign manufacturers.

Among options for addressing the international competitiveness problem within cap and trade, I am far less sanguine about proposals to offer "premiums" or other incentives to so-called developing countries to implement climate change legislation. In fact, countries like China, India, and Brazil have a huge incentive *not* to limit their greenhouse gas emissions. The absence of greenhouse gas regulations gives their products a powerful competitive edge in international commerce. It is doubtful that we could offer incentives sweet enough to convince these countries to surrender this advantage voluntarily. Several of these countries view existing incentive programs as a mechanism for transferring energy intensive industry onto their shores. While a negotiated, binding and enforceable global agreement could resolve many of these issues, I doubt that an effective agreement can be negotiated before 2012.

Other Concerns about Cap and Trade Legislation

The legislation pending in the Senate, S. 2191, rewards states with extra allowances if they impose more stringent cap and trade requirements than does the federal scheme. I shudder to think how American industry can cope with a federal cap and trade program and a multitude of conflicting, more stringent state programs. Recall that the states, under the U.S. Constitution and our trade laws, have no mechanism to achieve global reach, to avoid giving foreign manufacturers who sell in our markets a competitive advantage over domestic firms.

We are also very concerned that cap and trade legislation will encourage fuel switching from coal to natural gas, further escalating natural gas prices. This scenario is already occurring, just in anticipation of legislation. Electricity price hikes will unquestionably follow, not just for us, but for the entire economy. The technologies we need are not in place, and will not be for many years. Unfortunately, energy supply is woefully neglected in current law. Obviously, if U.S. energy costs continue upwards unabated, this will only increase the likelihood that foreign manufacturers, who have access to affordable energy, will capture U.S. jobs and domestic market share, and consequently increase greenhouse gas emissions.

A recurring question in the climate change debate is whether we should differentiate between developed and developing countries. From the perspective of the steel industry, this distinction is meaningless. The major steel producers in "developing" countries like China, India, and Brazil are among the largest – and in many cases the newest -- in the world.[18] They have the same access to capital, to markets, and to technology that the U.S. steel industry has. They

[18] *See* International Iron and Steel Institute, *World Steel in Figures 2007* 3 (2007). According to IISI, of the world's 30 largest steel producers, ten are based in China, four in Russia, two in India, and one each in Brazil, Iran, and Ukraine.

should be subject to the same requirements regarding greenhouse gas emissions that we are, instead of being handed a windfall that will increase global greenhouse gas emissions.

Conclusion

The American steel industry has led the world in reducing greenhouse gas emissions. Carbon intensity standards for products such as steel offer a straightforward, GATT-consistent method of reducing domestic emissions while preserving American competitiveness. By adopting performance standards, America will also lead developing countries to deploy low-carbon emitting technologies for steel, substantially enlarging the reach of domestic climate change legislation.